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(54) Title: LIGATIONAL ENCODING OF SMALL MOLECULES

(57) Abstract: The invention relates to a method for synthesising a bifunctional complex comprising an encoded molecule and an identifier polynucleotide identifying the chemical entities having participated in the synthesis of the encoded molecule, said method comprising the steps of i) providing a) at least one template comprising one or more codons capable of hybridising to an anti-codon, wherein said template is optionally associated with one or more chemical entities, and b) a plurality of building blocks each comprising an anti-codon associated with one or more chemical entities, and ii) hybridising the anti-codon of one or more of the provided building blocks to the template, iii) covalently linking said anti-codons and/or linking the at least one template with the anti-codon of at least one building block, thereby generating an identifier polynucleotide capable of identifying chemical entities having participated in the synthesis of the encoded molecule, iv) separating the template from one or more of the anti-codons hybridised thereto, thereby generating an at least partly single stranded identifier polynucleotide associated with a plurality of chemical entities, v) generating a bifunctional complex comprising an encoded molecule and an identifier polynucleotide identifying the chemical entities having participated in the synthesis of the encoded molecule, wherein said encoded molecule is generated by reacting at least two of said plurality of chemical entities associated with the identifier polynucleotide, and wherein said at least two chemical entities are provided by separate building blocks.

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